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NOTES ON GEOGRAPHIC DISTRIBUTION

Record of Northern Barracuda, *Sphyraena ensis* Jordan & Gilbert, 1882 (Perciformes, Sphyraenidae), from the extreme north of Chile during a non-ENSO (El Niño-Southern Oscillation) period

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Abstract. A unique specimen of Northern Barracuda, *Sphyraena ensis* Jordan & Gilbert 1882, was accidentally captured off the coast of the city of Taltal in northern Chile. This finding not only extends the known range of the species in Chilean territory by 228 km to the south, but it also is not related to an ENSO event (El Niño Southern Oscillation), as in the past. We discuss the importance of finding this species at the northernmost end of Chile and of conducting additional sampling to confirm *S. ensis* as a native Chilean species.

Key words. Antofagasta region, Barracuda, Chilean coast, Pacific Coast, Taltal

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INTRODUCTION

With only one genus, the family Sphyraenidae includes 27 species of bony fishes commonly known as barracudas (Nelson et al. 2016). These species are well known for being powerful predators, with the ability to regulate populations of prey fishes in the coastal areas they inhabit, playing a significant ecological role in their natural distribution areas (Barreiros et al. 2002; Hooker et al. 2007; Mohammadizadeh et al. 2010).

The genus *Sphyraena* Artedi, 1793 includes relatively common and widely distributed species, such as Northern Barracuda, *Sphyraena ensis* Jordan & Gilbert 1882. This species is typically classified as gregarious, as it tends to form large schools that can easily exceed hundreds of individuals, but solitary specimens are occasionally reported (Sommer 1995). The natural geographic distribution of this species is =Mexico to Paita, Peru (Vélez and Zeballos 1985; Méndez-Abarca and Pepe-Victoriano 2020), and there are three documented records from the northernmost coast of Chile, off Iquique (Tarapacá Region), Mejillones, and Antofagasta (Antofagasta Region), in 1983, 1998, and 1999 (Kong et al. 1985, 1999, 2002). All these previous records were associated with periods of increasing sea water temperature or ENSO (El Niño Southern Oscillation) events (Sielfeld et al. 2010). The depth range of *S. ensis* varies from 10 to 60 m (Méndez-Abarca and Pepe-Victoriano 2020), although Sommer (1995) reported a range of 0–25 m.

In this contribution, we document the finding of a specimen of *S. ensis* which was accidentally caught on a sandy beach in the city of Taltal, Antofagasta Region, Chile. This fish was caught in an artisanal fishing net in May 2019, in a non-ENSO year. This record expands the known geographic distribution of the species and provides additional information on the biology of the species.

METHODS

A single specimen of *Sphyraena ensis* was accidentally captured on 8 May 2019 as bycatch in an artisanal fishing net at a depth of 8 m in the Playa Atacama area, off the coast of the city of Taltal (Antofagasta Region), Chile (Figure 1). The specimen was subsequently taxidermized for future preservation. The preserved fish was photographed and deposited in the marine fish collection of the Vida Salvaje - Museo Vivo, of the Fundación Reino Animal (**FRA**), Arica, Chile.

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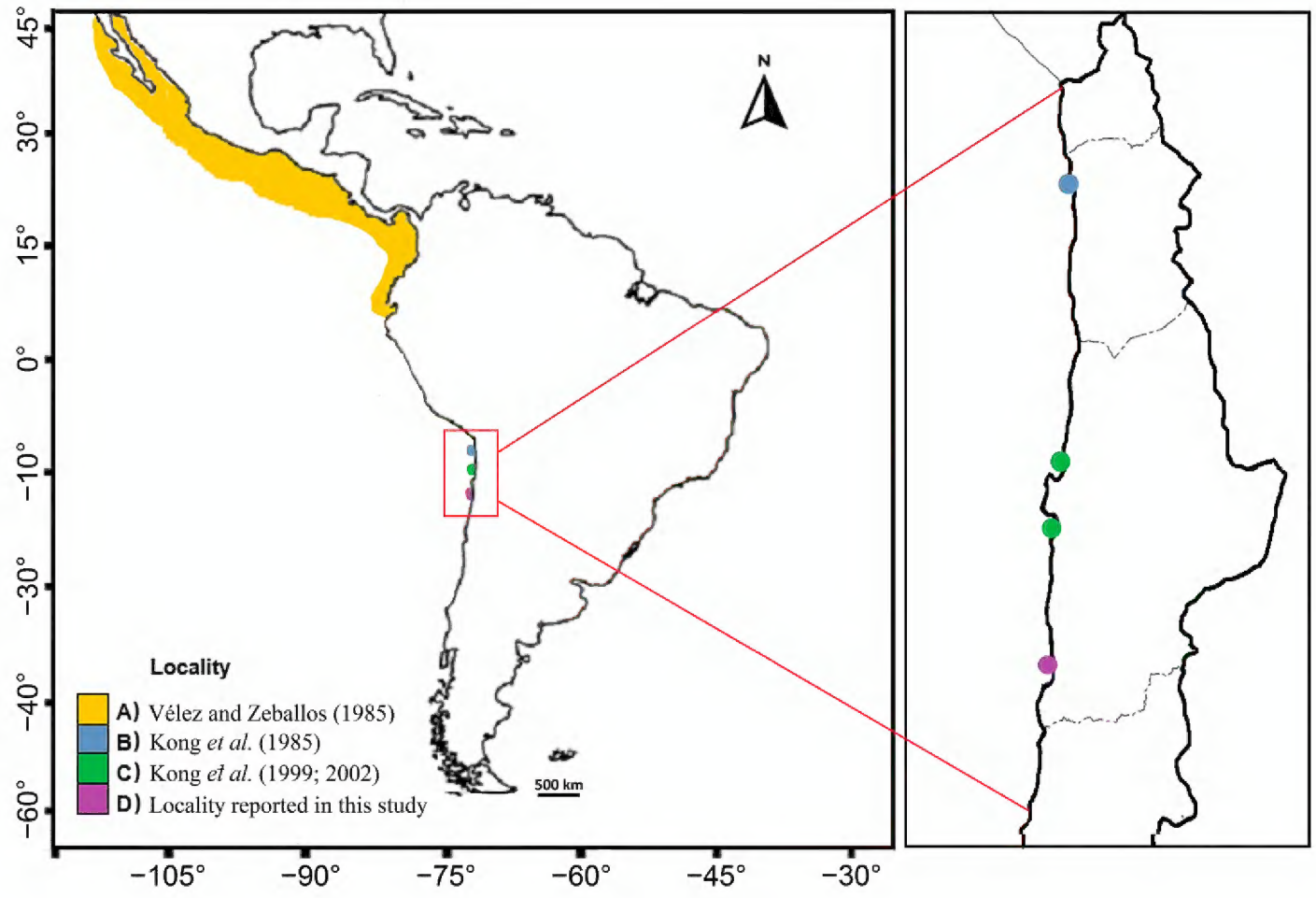

Figure 1. Distribution of *Sphyraena ensis* along the Pacific coast of South America showing historical and the new records of the species: geographic description as described by (A) Vélez and Zeballos (1985), (B) Kong et al. (1985), (C) Kong et al. (1999, 2002), and (D) the new record from Taltal, Chile.

RESULTS

***Sphyraena ensis* (Jordan & Gilbert, 1882)**
Figure 2

New records. CHILE – Antofagasta Region • Taltal, Playa Atacama sector; 25°26′00″S, 070°28′00″W; 8 m depth; 8.V.2019; F. Méndez-Abarca leg.; incidentally caught in artisanal fishing nets; 1 specimen, sex indet., COLECIC0369FRA.

Identification. The identification of the specimen was based on meristic and morphometric characters as described by Sommer (1995). The specimen has a body length of 432 mm, notably smaller than the maximum length recorded for the species, which reaches up to 1300 mm (Méndez-Abarca and Pepe-Victoriano 2020).

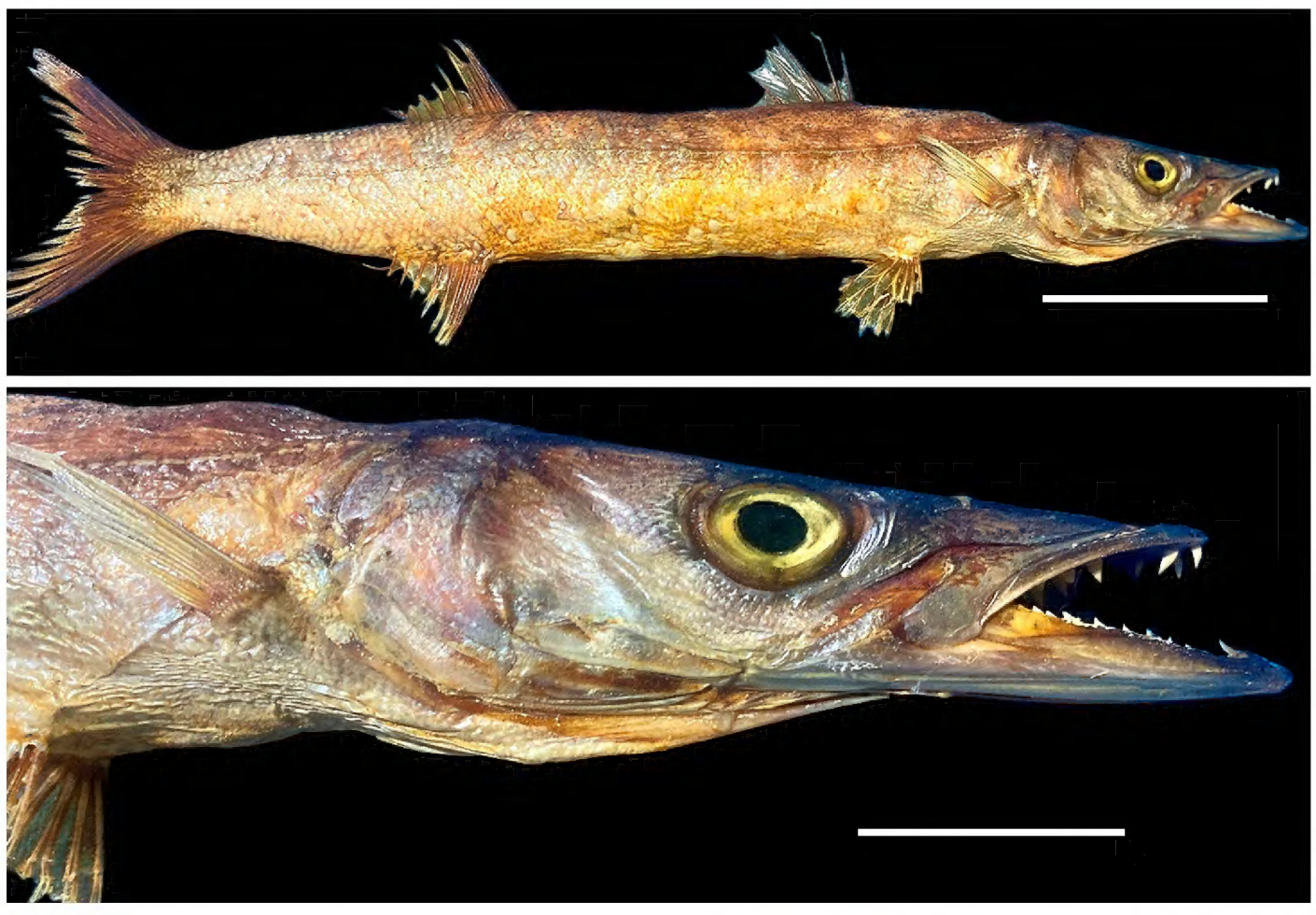

Figure 2. *Sphyraena ensis* collected in Taltal, Chile. **A.** Exemplary full body. **B.** Head detail. Scale bars: A = 8 cm; B = 2 cm.

Body sleek and straight, with head pointed in profile, and accompanied by a wide mouth housing large teeth, with the lower jaw more prominent than the upper. Background coloration silver-gray, adorned with dark vertical stripes along its flank. Fins, although mostly delicate and translucent in texture, stand out, and with caudal fin dark gray.

The morphological features match those provided by Sommer (1995).

DISCUSSION

The known geographic distribution of *Sphyraena ensis* ranges from Mexico to Paita, Peru (Vélez and Zeballos 1985; Méndez-Abarca and Pepe-Victoriano 2020), and with three documented records from the northernmost coast of Chile (Figure 1) (Kong et al. 1985, 1999, 2002). Notably, all these records were associated with periods of increased sea water temperature resulting from ENSO events (Sielfeld et al. 2010). However, Méndez-Abarca and Pepe-Victoriano (2020) indicated the existence of several undocumented records of the species in the same area of northern Chile.

The specimen captured off the city of Taltal expands the known geographic distribution of *S. ensis* by approximately 228 km. Moreover, this record is significant, as it not only expands its geographical distribution to southern Antofagasta, but also because it the capture was in May 2019, which was not during an ENSO event. ENSO events are commonly attributed as the reason for the presence of this species in the region. Such a find suggests that the occurrence of this species in these waters is not exclusively associated with an ENSO event, and that it could be native to the extreme northern coast of Chile. However, such a scenario needs confirmation by further sampling in the area.

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ADDITIONAL INFORMATION

Conflict of interest
The authors declare that no competing interests exist.

Ethical statement
No ethical statement is reported.

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Author contributions
Conceptualization: FMA. Writing – original draft: FMA, RPV. Writing – review and editing: FMA, RPV, EAM. Investigation: FMA. Resources: FMA. Visualization: EAM.

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Data availability
All data that support the findings of this study are available in the main text.

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